

VOYTKEVICH, A.A.; CHIRKH, T.K.

Effect of the extirpation of embryonic anlagen of the neurosecretory-hypophyseal system in amphibians. Dokl. AN SSSR 159 no.5: 1183-1186 D '64 (MIRA 18:1)

1. Predstavleno akademikom A.N. Bakulevym.

CHEKHA, Ye.

Create off-shore petroleum ports. Mor.flot 19 no.9:19-20 8 '59.

(MIRA 12:11)

1. Kapitan teplokhoda "Ochakov."  
(Petroleum--Transportation) (Docks)

CHEKH, Yu.Ye.

Shock excitation of oscillations in a stage. Radiotekhnika 18  
no.4:8-11 Ap '63. (MIRA 16:5)

1. Deystvitel'nyy chlen Nauchno-tehnicheskogo obshchestva  
radiotekhniki i elektrosvyazi imeni Popova.  
(Radio circuits) (Oscillations)

CHEKHA, Ye.

Efficient design and the reduction of building costs for large-  
capacity tank vessels. Mor. flot 23 no.6:25-27 Je '63.  
(MIRA 16:9)

1. Kapitan tankera "Druzhba".  
(Tank vessels---Design and construction)

*CHEKHANADSKiy, N.A.*

25(2); 9(7)

*72*

PHASE I BOOK EXPLOITATION

SOV/3128

Akademiya nauk SSSR. Institut mashinovedeniya. Seminar po tochnosti v mashinostroyeni i priborostroyeni

Trudy, vyp. 13 (Transactions of the Institute of Mechanical Engineering, USSR Academy of Sciences. Seminar on Precision in Machine Building and Instrument Construction, Nr 13) Moscow, 1959. 61 p. 2,500 copies printed.

Ed. of Publishing House: D.M. Ioffe; Tech. Ed.: I.N. Guseva; Editorial Commission: N.G. Bruyevich, Academician (Resp. Ed.), G.G. Baranov, Doctor of Technical Sciences, M.L. Bykhovskiy, Doctor of Technical Sciences, A.P. Vladzhiyevskiy, Doctor of Technical Sciences, B.G. Dostupov, Doctor of Technical Sciences; M.I. Kochenov, Candidate of Technical Sciences, Yu.V. Lyubator, Candidate of Technical Sciences, D.N. Reshetov, Doctor of Technical Sciences, V.I. Sergeyev, Candidate of Technical Sciences, A.S. Shatalov, Doctor of Technical Sciences

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Transactions of the Institute (Cont.)

SOV/3128

PURPOSE: This collection of articles is intended for scientists working in the field of computers and electronics.

COVERAGE: This collection of articles was originally read at a seminar of the Academy of Sciences on the topic of accuracy in machine and instrument building. Individual articles treat measuring and computing devices. No personalities are mentioned. References follow each article.

TABLE OF CONTENTS:

Chekhanadskiy, N.A. On Some Problems of Theoretical Probability Analysis of Static Errors of Measuring Systems and 3

The author discusses some questions of terminology, derives an expression for the total error of a measuring system, giving particular cases of application of the obtained formulas, namely, when the external excitations are absent, when the external excitations are stationary random functions of time, and when the external excitations are constant magnitudes.

Matevosyan, P.A. Determining Power and Direction of Energy Flow in Connections of Complex Devices

The author gives methods for determining the number of degrees of freedom, and for determining forces and direction of energy flow in connection of complex systems.

Card 2/4

Transactions of the Institute (Cont.)

SOV/3128

Lyubotov, Yu. V. Investigation of Errors in Methods in Sighting Systems  
With Movable Speculae

28

The author presents a universal way of determining methodic errors and parallaxes in an optical system with speculae in pencil beams, which almost eliminates the possibility of an error.

Kogutov, R.I. Some Problem of Increase of the Accuracy of Bar - type  
Computing Devices

34

The author derives a formula for determination of error of the mechanism in the case of adjustment by two parameters; determines the limit derivations of the mechanism error, taking into consideration adjustment by one, and by two parameters; also determines the error of the selected adjustment method; shows the adjustment of an tangential mechanism by two parameters, elimination of plays and clearances in kinematic couples, and the effect of plays on the accuracy of the mechanism

Bykhovskiy, M.L. Accuracy of Electric Circuit With Electron Tubes,  
Operating Under Large-Signal Conditions

53

Card 3/4

Transactions of the Institute (Cont.)

SOV/3128

The author discusses the error in circuit output voltage, due to the errors in the linear system, and to the errors in tube characteristics.

AVAILABLE: Library of Congress

Card 4/4

VK/gap  
4-22-60

CHEKHANOVSKIY, I.A.

AID P - 5153

**Subject** : USSR/Engineering

**Card 1/1** Pub. 103 - 12/18

**Authors** : Chekhanovskiy, I. A., and A. I. Sbruyev

**Title** : Grinding outer conical surfaces with an inclination angle larger than 7 degrees.

**Periodical** : Stan. i instr., <sup>27</sup> 5, 41, My 1956

**Abstract** : The authors describe an attachment to a cylindrical grinding machine with the longitudinal feed mechanism for grinding outer conical surfaces exceeding 7 degrees inclination. Three drawings.

**Institution** : None

**Submitted** : No date

1. CHEKHAREVA, A. A., Eng
2. USSR (600)
4. Hungary - Woodworking industries
7. Production of plywood panels in Hungary, Der. i lesokhim. prom.  
2 No. 2, 1953

9. Monthly List of Russian Accessions, Library of Congress. May 1953. Unclassified.

YESKOVA, I.K.; KOGOT, T.F.; SOBOLEVA, A.D.; CHEKAREVA, G.A.

Regeneration of the mitral valve following commissurotomy to correct a rheumatic defect. Khirurgiya 35 no.1:105-112 Ja '59.

1. Iz Instituta grudnoy khirurgii ANU SSSR (dir. - prof. A.N. Bakulev) i kafedry patologicheskoy anatomii (zav. - prof. I.V. Davydovskiy) II Moskovskogo meditsinskogo instituta imeni N.I. Pirogova.  
(COMMISSUROTOMY,

mitral, postop. regen., autopsy data (Rus))

L 12472-63

S/108/63/018/004/002/008

44

AUTHOR: Chekh, Yu. Ye., Active Member of the Society

TITLE: Pulsating excitation of oscillations in a circuit

PERIODICAL: Radiotekhnika, v. 18, no. 4, 1963, 8-11

TEXT: In radiotechnological apparatus, a wide application of a scheme is produced in which the pulsating excitations of an oscillatory circuit are used because of an abrupt change of the anode current with shutting off of the lamp. The equation for the anode current of the lamp depends on the characteristic of the lamp. An investigation of the problem concerning the pulsating excitation of oscillations in a circuit with calculation of the curvilinear characteristic of the lamp is made. Equations are obtained for the calculation of the initial amplitude of the voltage at any correlations between the duration of the front of the activating current and the period of natural oscillations of the circuit. Equations

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12472-63

Pulsating excitation of oscillations...

S/108/63/018/004/002/008

for initial amplitude of the voltage at  $n \gg 1$  (5) and  $n \ll 1$  (6) are:

$$U'_0 = \frac{I_m}{C\omega} \quad (5)$$

$$U''_0 = \frac{S_m \gamma}{C\omega^2} \quad (6)$$

where  $I_m$  --anode current at maximum voltage,  $C$  --capacitance,  $\omega$  --resonance of the circuit,  $S_m$  --sharpness of the characteristic of the lamp at maximum voltage,  $S_m \gamma$  -- $n I_m \omega$ . Experimental values coincide well with calculated data. Calculation of nonlinearity of lamp characteristics permits calculation of sufficiently accurate equations (5), (6) which have a practical value, for example for estimation of radiopulsating multipliers of a frequency. There are 5 figures, 4 foreign language references.

SUBMITTED: January 30, 1961 (initially)  
November 26, 1962 (after revision)

Card 2/2

CHEKHANSKIY, Ya.

Installing the grating of a kingston valve in the bottom part of the hull of a ship at sea. Mor. flot 25 no.8:28-29 Ag '65. (MIRA 18:8)

1. Starshiy inzh. po sudopod'yemnym i avariyno-spasatel'nym  
rabotam ekspeditsionnogo otryada ASPTR Chernomorskogo parokhodstva.

CHEKHARIN, V. I.

CHEKHARIN, V. I. - "Socialistic Industrialization of Bulgaria."  
Sub 31 Jan 52, Moscow Oblast Pedagogical Inst. (Dissertation  
for the Degree of Candidate in Geographical Sciences).

SO: Vechernaya Moskva January-December 1952

S/194/62/000/005/115/157  
D230/D308

AUTHOR: Chekharin, Ye.A.

TITLE: Broadband microwave load resistances. (Load resistances and equivalent antennas)

PERIODICAL: Referativnyy zhurnal. Avtomatika, i radioelektronika, no. 5, 1962, 35, abstract 5zh247 (Sb. tr. XIII Leningr. nauchno-tekhn. konferentsii, posvyashch. dnyu radio, L. 1959, 28-47)

TEXT: Some results are presented of investigation of broadband coaxial load resistances in the UHF range; the work was carried out mainly during 1956. [Abstractor's note: Complete translation].

Card 1/1

CHEKHARINA, V.I.

BOCHKAREV, P.S., redaktor; ZAUER, N.S.; POPOVA, N.I.; CHEKHARINA, V.I. [translators].

[Bulgaria: geographical sketches] Bolgariia; geograficheskie ocherki. Sokr. perevod s bolgarskogo N.S.Zauer, N.I.Popova i V.I.Chekharina. Predisl. i red. P.S.Bochkareva. Moskva, Isd-vo inostrannoi lit-ry, 1953. 493 p.

(MIRA 6:10)

(Bulgaria--Description and travel)

CHEKHARINA, Ye.A.

Melanoblastoma of the skin with unusual distribution. Vop.onk.  
1 no.1:115-117 '55. (MLRA 8:10)

1. Iz 2-go khirurgicheskogo otdeleniya (zaveduyushchiy prof.  
A.I. Rakov) Instituta onkologii AMN SSSR (direktor--chlen  
korrespondent AMN SSSR prof. A.I.Serebrov) Leningrad, 10,  
Zelenina ul., 36, kv.2.

(MELANOMA,

skin, unusual case)

(SKIN, neoplasms,

melanoma, unusual case)

CHEKHARINA, Ye.A. (Leningrad, 10, Zelenina ul. d.36, kv.2)

Pseudomyxoma of the retroperitoneal space <sup>was</sup> ~~form~~ a cyst of the appendix.  
Vop.onk. 1 no.6:103-105 '55. <sub>from</sub> (MLA 10:1)

1. Iz 2-go otdeleniya (sav. - professor A.I.Bakov) Instituta onkologii  
AMN SSSR (dir. - chlen-korrespondent AMN SSSR prof. A.I.Serebrov)

(APPENDIX, cysts,

degen. into retroperitoneal pseudomyxoma (Rus))

(ABDOMEN, neoplasms,

pseudomyxoma, retroperitoneal from cyst of appendix (Rus))

(CYSTS,

appendix, degen. into retroperitoneal pseudomyxoma (Rus))

*ТТ Селгеномическая Задружеского происхождения из Кавказа*  
*Гиперпластическая опухоль*

CHEKHARINA, Ye.A. (Moskva)

Prevention of gastric cancer. Med.sestra 15 no.8:8-11 Ag '56.

(STOMACH--CANCER)

(MIRA 9:10)

~~CONFIDENTIAL~~  
CHENKHARINA, Ye.A. (Leningrad, 10, ul. Savushkina, d.13 a, kv.58)

Metastases of the soft tissue sarcomas from the extremities and  
the trunk to regional lymph nodes [with summary in English].  
Vop.onk. 3 no.6:729-735 '57. (MIRA 11:2)

1. Iz 2 khirurgicheskogo otdeleniya (zav. - prof. A.I.Rakov)  
Instituta onkologii ANU SSSR (dir. - daystv. chlen ANU SSSR prof.  
A.I.Serebrov)

(LYMPH NODES, neoplasms

sarcoma, metastatic from soft tissues)

(SARCOMA

metastatic from soft tissues to lymph nodes)

CHEKHARINA, E.A.; IURKINA, M.S.

Clinical aspects of myelomatosis. Khirurgia, Sofia 11 no.9:796-805  
1958.

1. Akademiia na meditsinskite nauki—SSSR institut po onkologiya  
direktor: prof. A. I. Serebrov.

(MYELOMA, PLASMA CELL, case reports,  
(Bul))

EXCERPTA MEDICA Sec 16 Vol 7/9 Cancer Sept 59

3927. Teratoma of an abdominal testis (Russian text) CHEKHARINA E. A. and  
BERMAN N. A. Inst. of Oncol., AMS, Leningrad *Vopr. Onkol.* 1958, 4/5 (620-623)  
Illus. 3

In a man of 30 a suprapubic tumour was surgically removed. It was a teratoma  
measuring 16 × 19 × 9 cm., without malignant degeneration and originating from  
a cryptorchid testis.

OL'SHANETSKIY, A.S.; SHEMYAKINA, T.V.; CHEKHARINA, Ye.A.

Alloplasty of a defect of the abdominal wall after removal of a  
neoplasm. Vop. onk. 5 no.12:722-725 '59. (MIRA 13:12)  
(ABDOMEN—SURGERY)

CHEKHARINA, Ye.A.

Clinicomorphological characteristics of fibrosarcomas in the  
soft tissues of the extremities and the trunk. Trudy Inst.  
onk. AMN SSSR no.3:43-60 '60 (MIRA 16:12)

1. Iz II khirurgicheskogo otdeleniya (zav. - prof. A.I.Rakov)  
Instituta onkologii AMN SSSR.

SHEMIAKINA, T.V.; CHEKHARINA, Ye.A.; BONNER, R.L.

Clinical characteristics of the functional state of the mucous membrane of the stomach in cancer. Trudy Inst. onk. AMN SSSR no.3:103-111 '60 (MIRA 16:12)

1. Iz I khirurgicheskogo otdeleniya (zav. - chlen-korrespondent AMN SSSR prof. S.A. Zholdin), II Khirurgicheskogo otdeleniya (zav. - prof. A.I. Rakov) i rentgenologicheskogo otdeleniya (zav. - prof. L.M. Gol'dshcheyn) Instituta onkologii AMN SSSR.

CHEKHARINA, YE. A., CAND MED SCI, "FIBROSARCOMA OF <sup>the</sup> SOFT TISSUES. (MORPHOLOGY AND CLINIC)." LENINGRAD, 1960. (STATE ORDER OF LENIN INST FOR <sup>the</sup> ADVANCED TRAINING OF PHYSICIANS IN S. M. KIROV). (KL, 2-61, 221).

-298-

BABCHIN, I.S., prof.; BABANOVA, A.G., doktor med. nauk; BLOKHIN, N.N., prof.; BONDARCHUK, A.V., prof.; GAL'PERIN, M.D., prof.; GOL'DSHTeyN, L.M., prof.[deceased]; DYMARSKIY, L.Yu., kand. med. nauk; KARPOV, N.A., prof.; KOYRO, M.A., nauchn. sotr.; LARIONOV, L.F., prof.; LITVINOVA, Ye.V., kand. med. nauk; MEL'NIKOV, R.A., kand. med. nauk; NECHAYEVA, I.D., doktor med. nauk; PETROV, Nikolay Nikolayevich, prof.; PETROV, Yu.V., kand. med.nauk; RAKOV, A.I., prof.; ROGOVENKO, S.S., kand. med. nauk; SENDUL'SKIY, I.Ya., prof.; SEREBROV, A.I., prof.; SMIRNOVA, I.N., kand. med. nauk; TAL'MAN, I.M., prof.; TOBILEVICH, V.P., prof.; TRUKHALEV, A.I., kand. med. nauk; Kholdin, Semen Abramovich, prof.; CHEKHARINA, Ye.A., kand. med. nauk; CHECHULIN, A.S., kand. med. nauk; SHAAK, V.A., prof.[deceased]; SHANIN, A.P., prof.; SHAPIRO, I.N., prof.[deceased]; SHEMYAKINA, T.V., kand. med. nauk; SHERMAN, S.I., prof.; ABRAKOV, L.V., red.; LEBEDEVA, Z.V., tekhn. red.

[Malignant tumors]Zlokachestvennyye opukholi; klinicheskoe rukovodstvo. Leningrad, Medgiz. Vol.3. Pts.1-2. 1962. (MIRA 16:5)

1. Deystvitel'nyy chlen Akademii meditsinskikh nauk SSSR (for Blokhin, Petrov, Serebrov). 2. Chlen-korrespondent Akademii meditsinskikh nauk SSSR (for Kholdin).

(CANCER)

YAKOVLEVA, M.P.; CHEKHARINA, Ye.A.; SMIRNOVA, I.N.

Detection of tumoral cells in the blood in cancer of the organs  
of the respiratory system. Vop. onk. 11 no.2:11-16 '65.

(MIRA 18:7)

1. Iz 2-go khirurgicheskogo otdeleniya (zav. - chlen-korrespondent  
AMN SSSR prof. A.I. Rakov), otolaringologicheskogo otdeleniya  
(zav. prof. N.A. Karpov), klinicheskoy laboratorii (zav. - dotsent  
I.F. Grekh) Instituta onkologii AMN SSSR (direktor - deystvitel'nyy  
chlen AMN SSSR prof. A.I. Serebrov).

ABRAKOV, L.V.; BARANOVA, A.G.; DYMARSKIY, L.Yu.; DYAD'KOVA, A M.;  
RABKOVA, L.M.; RAKOV, A.I.; SEREBROV, A.I.; SMIRNOVA, I.N.;  
KHOLDIN, S.A.; TSEL', Ye.A.; CHEKHARINA, Ye.A.; SHABASHOVA,  
N.Ya.; SHANIN, A.P.

Reviews. Vop. onk. 11 no.7:116-126 '65.

(MIRA 18:9)

*Chel'nik, TS.*

**CHEKHIRA, TS., gvardii mayor.**

Lieutenant Rogatin, commander of an engineer ponton platoon. Voen.-  
insh. zhur. 101 no.10:36-37 0 '57. (MIRA 10:11)  
(Rogatin, Aleksandr)

CHEKHIRA, TS.

Leaning on active workers. Avt. transp. 43 no.1:6 Ja '65.  
(MIRA 18:3)

CHEKHIROV, B.

"Starch Production," Tekh. Zhur., No.2, 1948

CHEKHLAN', V.G., master

Deficiencies in the electric equipment of the TE3 diesel locomotive. Elek. i topl. tiaga 2 no.5:25-27 '58.

(MIRA 12:4)

1. Elektrotsekh lokomotivnogo depo Orsk.

(Diesel locomotives--Electric equipment)

**CHEKLAN', V.G., master.**

**Methods of increasing efficiency of storage batteries used in diesel locomotives. Elek. i tepl. tiaga 2 no.10:24-25 0 '58.**  
(MIRA 11:11)

- 1. Elektrotsekh depo Orsk, Orenburgskoy dorogi.**  
(Diesel locomotives--Electric equipment) (Storage batteries)

ZDRAVKOV, Stoiko, inzh., k.t.n.; CHEKHLAROV, Anastas, inzh.; NELCHINOV,  
Georgi, inzh.

Certain problems of sprinkling technique. Khidrotekhnika i melioratsiya no.10:  
307-310 '62.

CHEKHLAROV, Anastas, inzh.

The Pc-2 sprinkler. Khidrotekh i melio 7 no.10:317-320 '62.

CHEKHLAROV, Anastas, inzh.

Determination of water discharge in semistationary sprinkler  
irrigation systems. Khidrotekh i melior 9 no.1822-23, 27 '64.

CHEKHLAROV, Anastas, inzh.

The "Maritsa-40" movable sprinkling installation. Khidrotekhnika  
mellor 9 no.7:208-210 '64.

CHEKHLAROV, G.

Continuous airbrakes; description of the various systems and types of continuous airbrakes; their use and repair Sofia Nauka i izkustvo 1949 - (Biblioteka Transportno Knigoizdavane, no. 2-) (51-38773)

TF420.C43

GLIKINA, E.L.; ~~CHEKHLATYY, F.Kh.~~ professor, direktor instituta.

Interspecific relationships of parasites of the small intestine of man  
(Ascaris and Hymenolepis). Med.paraz.i paraz.bol. no.4:343-346 JI-Ag '53.  
(MIRA 6:9)

1. Kafedra biologii Kubanskogo meditsinskogo instituta.  
(Worms, Intestinal and parasitic)

BULGARIA

V. CHEKHLAROV and R. KOTUPANOVA [Affiliation not given]

"Concurrent Staining of Many Histology Slides."

Sofia, Voenno Meditsinsko Delo, Vol 18, No 3, Jun 63; p 64.

Abstract : Holder for 30 slides, easily made from ubiquitously accessible materials (aluminum pots etc.) permits rapid staining of large numbers of histology slides. Two photographs.

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KUPENOV, N.; GOTEV, N.; SYMNALIYEV, M. [Symnaliev, M.]; TOMOV, A.; KHRISTOV, Iv.; BAYEV, V. [Baev, V.]; DOBREVA, Yev. [Dobrev, Ev.]; MICHEV, T.; CHEKHLAROV, V.

Natural tularemia focus in Bulgaria. Zhur. mikrobiol., epid. i immun. 41 no.4:124-131 Ap '64. (MIRA 18:4)

1. Kafedra voyennoy epidemiologii i gigiyeny Sofiyskogo vysshego voyenno-meditsinskogo instituta, Bolgariya.

L 3774-66 ENT(m) DIAAP GS

ACCESSION NR: AT5007949

S/0000/64/000/000/0768/0790

29  
BT/

AUTHOR: Vagin, V. A.; Veksler, V. I.; Zubarev, V. M.; Kusanov, A. B.; Mukhin, S. V.; Petukhov, V. A.; Popov, V. A.; Rubin, M. B.; Stepanyuk, V. L.; Chekhlov, K. V.; Semenyushkin, I. N.

TITLE: Electrodynamic separator of antiprotons with 5 GeV/c momentum

SOURCE: International Conference on High Energy Accelerators. Dubna, 1963. Trudy. Moscow, Atomizdat, 1964, 788-790

TOPIC TAGS: high energy particle, antiproton, pion, particle interaction

ABSTRACT: The study of processes initiated by such particles as high-energy K-mesons and antiprotons is often determined by the possibility of separating these particles from an accompanying pi-meson background. The tremendous technical difficulties arising in the use of the electrostatic method of separation for obtaining pure beams of relativistic particles urgently dictate the necessity of seeking new means of separating particles. In 1958, V. I. Veksler and V. A. Petukhov proposed an electrodynamic method of separating particles according to masses. At the present time the high-energy laboratory of the Joint Institute of Nuclear Research is perfecting the application of an electrodynamic separator, creat-

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L 3774-06

ACCESSION NR: AT5007949

ed on the basis of this method, of antiprotons with momentum up to 5 Gev/c. The present report discusses the principle governing the operation of the electrodynamic separator. At the end of the acceleration cycle in the synchrophasotron the protons are recaptured into the acceleration regime at a frequency of high multiplicity and are subsequently directed against a target. The beam of secondary particles which then occurs possesses a corresponding high-frequency structure. The negatively charged particles that interest us are extracted by the magnetic field of the accelerator to the outside. Further, as a result of magnetic analysis the particles are resolved in a narrow interval of momenta, or pulses. A longitudinal distribution of the resolved particles begins to take place over a certain distance of their flight. The antiprotons being heavier particles retire from the pi-mesons. If the total length  $L$  of flight, counted from the target (for the case of relativistic particles) is equal to

$$L \approx \frac{\lambda}{2(\beta_1 - \beta_2)},$$

where  $g$  is the operating wavelength of a multiple-acceleration system and  $\beta_1, \beta_2$  are respectively the velocities of the pi-mesons and antiprotons in units of the speed of light, then the lag of the antiprotons is exactly equal to the half wavelength  $\lambda/2$ . On the path of the particles at this place there is created a high-frequency transverse electric field with the same wavelength  $\lambda$  which is rigidly bound in

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ACCESSION NR: AT5007949

phase with the voltage that is accelerating the beam at multiple frequency. In case of a suitable choice of the phase of the electric field the antiprotons and the pi-mesons will obtain angular deflections different in sign and can be spatially resolved further. The report discusses the composition of the electrodynamic separator of antiprotons at the high-energy laboratory, which consists of a multiple-acceleration system, deflecting device, and an ion-optical system. Also discussed are the separator's characteristics. The device can also be employed to resolve pi-mesons and antiprotons with smaller values of momenta and to separate K-mesons, if certain necessary conditions are fulfilled for the separation of antiprotons and K-mesons respectively:

$$(pc)_p \sim m_p c^2 \left[ \frac{L}{(2n+1)\lambda} \right]^{1/2}; \quad (pc)_K \sim m_K c^2 \left[ \frac{L}{(2n+1)\lambda} \right]^{1/2}.$$

where the momenta of the antiprotons and K-mesons are respectively  $(pc)_p$ ,  $(pc)_K$ , and the rest-energy of an antiproton is  $m_p c^2$ , and  $n = 0, 1, 2, \dots$  Orig. art. has 3 figures.

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L 3774-66

ACCESSION NR: AT5007949

ASSOCIATION: Ob'yedinenyy institut yadernykh issledovaniy, Dubna (Joint Institute of Nuclear Research)

SUBMITTED: 24 May 64

ENCL: 00

SUB CODE: WP

NO REF SOV: 003

OTHER: 000

PC  
Card 4/4

L 39640-66 EWT(m)/T GD-2

ACC NR: AP6002891

SOURCE CODE: UR/0286/65/000/024/0048/0048

INVENTOR: Kazanskiy, G. S.; Mikhaylov, A. I.; Chekhlov, K. V.

ORG: none

TITLE: Induction electrodes for determining the position of a beam of charged particles. Class 21, No. 177000 [announced by Joint Institute for Nuclear Research (Ob'yedinennyy institut yadernykh issledovaniy)]

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 24, 1965, 48

TOPIC TAGS: conductor, acceleration, charged particle, electrode, particle beam, particle acceleration, particle accelerator component, alternating magnetic field

ABSTRACT: The induction electrodes for determining the position of a beam of charged particles, made in the form of a parallelepiped and set in the aperture of an accelerating chamber, are characterized by the fact that they are produced in the form of a metallic grid with conductors insulated from each other, inserted between two dielectric plates of the parallelepiped walls, and connected to each other at one point. These characteristics were incorporated into the design in order to distribute the induction electrodes over any bearing of an accelerator orbit in an alternating magnetic field.

SUB CODE: 20, 09/ SUBM DATE: 24Jul64

Card 1/1 *MLP*

UDC: 621.384.6

L 56648-65 EWT(m)/EPA(w)-2/EWA(m)-2 Pab-10/Pt-7 LJP(c)

ACCESSION NR: AP5011867

UR/0120/65/000/002/0021/0025

AUTHOR: Kazanskiy, G. S.; Mikhaylov, A. I.; Puchkov, G. P.;  
Tsarenkov, A. P.; Chekhlov, K. V.

TITLE: Investigation of the possibility of accelerating particles at multiple resonance frequencies in a 10-Gev proton-synchrotron

SOURCE: Pribery i tekhnika ekspeizimenta, no. 2, 1965, 21-25

TOPIC TAGS: particle acceleration, proton synchrotron

ABSTRACT: The increased efficiency of the locking-into-synchrotron regime, the acceleration with one electrode, and the improved shape of a secondary-particle beam when the primary beam is quickly extracted by means of a higher-harmonic acceleration, are theoretically analyzed. The third harmonic is selected as the most favorable. An experimental verification at  $3f_{01} = 613$  kc and 13.5 kv on the resonance circuit showed that: the locking into acceleration increases by 30%; the

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I 56648-65

ACCESSION NR: AP5011867

rate of particle loss in the first acceleration stage decreases by 30-40% (thus, the intensity becomes higher by 1.5-2 times); the effect of the resonance with a 1800-cps magnetic-field ripple harmonic is eliminated as the phase-oscillation frequency is increased to 2500 cps. Further improvement in the proton-synchrotron operation is seen in a stepping up of the injection energy from 10 Mev to 30 Mev. "In conclusion, the authors wish to thank these workers of the Electronic Division who took part in carrying out the experiments: V. I. Prokof'eva, V. A. Shtyrl'yayev, Yu. M. Starikov, Z. S. Starikova, N. N. Blinnikov, V. F. Golembevskiy, and G. A. Bokov." Orig. art. has: 4 figures and 16 formulas.

ASSOCIATION: Ob'yedinenny institut yadernykh issledovaniy (Joint Nuclear Research Institute)

SUBMITTED: 05Feb64

ENCL: 00

SUB CODE: NP

NO REF SOV: 004

OTHER: 002

Card 2/2

L 4232-66 EWT(m)/EPA(w)-2/EWA(m)-2 IJP(c) GS

ACCESSION NR: AT5007970

S/0000/64/000/000/0970/0975

25  
24  
21

AUTHOR: Kazanskiy, G. S.; Kuznetsov, A. B.; Mikhaylov, A. I.; Tsarenkov, A. P.;  
Chekhlov, K. V.; Rubin, N. B.

TITLE: Certain special features governing the adjustment of the acceleration regime on the OIYaI 10-Gev synchrophasotron *M*

SOURCE: International Conference on High Energy Accelerators. Dubna, 1963. Trudy. Moscow, Atomizdat, 1964, 970-975

TOPIC TAGS: high energy accelerator, proton accelerator, linear accelerator

ABSTRACT: The oscillogram form of the signals recorded by inductive electrodes in the quasi-betatron regime is due to the subsequent entrapment of the particles into acceleration. The signals are proportional to the variation in the density (e. g. of the order of  $2.5 \cdot 10^{10}$  to  $5.2 \cdot 10^{10}$  protons per pulse) of the particles in the quasi-betatron state in the case of multi-rotation injection at the azimuth of the "vertical" induction electrodes. (Kazanskiy, G. S., et al. *Atomnaya energiya* 14, 153 (1963)). The oscillograms also indicate the state corresponding to particle storage in the accelerator chamber. Measurements show that a small group of particles, comprising about 0.5% ( $5 \cdot 10^9$  protons per pulse) of the total number of particles,

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ACCESSION NR: AT5007970

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tics injected, takes part in the formation of the signal. The frequencies in the central part of the signal correspond to the frequency of revolution or are multiples of it. The appearance of such frequencies can explain the presence of the charge front during input of the particles into the accelerator chamber (or the formation of the drop in density at the moment of intensive losses at the beginning of injection), and also the amplitudinal nonequilibrium of the injection current from the linear accelerator, if there occur here azimuthal inhomogeneities whose extent is less than the perimeter of the equilibrium orbit. The connection between the form of the high-frequency signal under consideration and the subsequent entrapment of the particles into the synchrotron state is characteristic. If the oscillations close to the "rear" signal front formed by the particles with amplitudes of betatron radial oscillations are damped, then the effectiveness of entrapment decreases, and in the absence of such damping the effectiveness is greater, as shown by the oscillograms. In the case of the "differential" method of signal recording with induction electrodes, signals are observed whose form can be modified from sinusoidal to a series of discrete pulse-formed signals. In most cases (excluding those where the values  $n$  are resonant) the general picture represents the result of superposition of this and another group of signals, as seen on os-

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ACCESSION NR: AT5007970

cillograms. The present report discusses the following pertinent topics: quasi-betatron state; synchrotron state; system of high-frequency accelerator supply; programming and adjustment of regimes suitable for physical experiments. The authors show that, by combining the various methods of beam output against a target and applying one or another method of selection, one can utilize intelligently the intensity in the accelerator cycle, thus ensuring a combination of different physical experiments. Orig. art. has: 6 figures, 6 formulas.

ASSOCIATION: Ob'yedinennyy institut yadernykh issledovaniy, Dubna (Joint Institute of Nuclear Research)

SUBMITTED: 26May64

ENCL: 00

SUB CODE: NP

NO REF SOV: 004

OTHER: 000

*beh*

Card 3/3

KALABINA, A.V.; CHEKHLOVA, N.V.; VERESHCHAGIN, L.I.; LIPOVICH, V.G.

Synthesis and transformations of vinyl aryl ethers. Report  
No.12: Some chemical transformations of vinyl ethers of  
 $\alpha$ - and  $\beta$ -naphthols. Izv. Fiz.-khim. nauch.-issl. inst. Irk.  
un. 4 no.2:191-202 '59. (MIRA 16:8)

(Ethers)

(Naphthol)

CHEKHMATAYEV, D.P.

ANDRONNIKOV, K.S.; BALAKOV, V.V.; BUZHINSKIY, A.N.; BURAGO, A.N.; VERTMAN, L.A.; VISHNEVSKIY, A.A.; VOLOSOV, D.S.; GASSOVSKIY, L.N., professor; GERSHUN, A.A., professor; YEL'YASHEVICH, M.A.; YEVSTROP'YEV, K.S.; GUREVICH, M.M., professor; KOLYADIN, A.I.; KORYAKIN, B.M.; KURITSKIY, A.L.; PAPIYANTS, K.A.; PROKOP'YEV, V.K., professor; PUTSHYKO, Ye.K.; REZUNOV, M.A.; RITYN', N.B., SAVOST'YANOVA, M.V., professor; SEVCHENKO, A.N.; SENNOV, N.I.; STOZHAROV, A.I.; FAYERMAN, G.P., professor; PROFILOV, P.P.; TSAREVSKIY, Ye.N., professor; CHEKHMATAYEV, D.P.; YUDIN, Ye.P.; KAVRAYSKIY, V.V., professor; VAVILOV, S.I., akademik, redaktor

[Optics in military science] Optika v voennom dele; sbornik statei. Pod red. S.I.Vavilova i M.V.Savost'ianovoi. Izd. 3-e, zanovo perer. i dop. Moskva. Vol.2. 1948. 387 p. (MLRA 9:9)

1. Akademiya nauk SSSR. 2. Sostaviteli - sotrudniki Gosudarstvennogo Opticheskogo instituta (for all except Vavilov and Kavrayskiy)
3. Voenno-morskaya akademiya (for Kavrayskiy)  
(Optics)

CHEKHMATAYEVA, S. M.

USSR/Chemical Technology. Chemical Products and Their Application -- Silicates.  
Glass. Ceramics. Binders, I-9

Abst Journal: Referat Zhur - Khimiya, No 2, 1957, 5248

Author: Chekmatayeva, S. M., Bogoyavlenskaya, I. B.

Institution: State Scientific Research Institute of Ceramics

Title: Amelioration of the Quality of Refractory Supplies

Original

Publication: Tr. Gos. n.-i. keram. in-ta, 1955, No 2, 10-26

Abstract: The work that has been carried out revealed that the quality of chamotte saggars used in porcelain manufacture, can be improved by replacing the procedure of plastic forming by semi-dry pressing (under a pressure of  $\sim 500 \text{ kg/cm}^2$ ) or by pneumatic tamping. Latninskaya and Druzhkovskaya clay and Prosyanskiy kaolin were used as the raw materials. Chamotte was added to the paste in the form of sagger scrap and various fired clays. A study was also made of the effect of addition of technical alumina. Pressed saggars had a compression strength 4 times greater, and a water absorption 1.5 times

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USSR/Chemical Technology. Chemical Products and Their Application -- Silicates.  
Glass. Ceramics. Binders, I-9

Abst Journal: Referat Zhur - Khimiya, No 2, 1957, 5248

Abstract: lower, than saggars of plastic forming. Study of carborundum pastes has shown that the quality of saggars and tiles produced from a mixture of (parts by weight): carborundum 97, clay 3, is considerably better than that of chamotte. However, because this raw material is in short supply, carborundum products cannot be used as a complete substitute for other refractories. Further improvement of the quality of chamotte refractories is possible by an addition to the paste of 15-20% of calcined, ground alumina.

Card 2/2

*CHEKHMATAYEVA, S. M.*

USSR /Chemical Technology. Chemical Products  
and Their Application

I-12

Silicates. Glass. Ceramics. Binders.

Abs Jour: Referat Zhur - Khimiya, No 9, 1957, 31591

Author : Chekhmatayeva S.M.

Title : Carborundum Plates for Tunnel Furnace Trucks

Orig Pub: Sb.: Kapseli i karkasnyye ogneupornyye detali,  
primenyayemyye v keram. prom-sti. M., Promstroy-  
izdat, 1956, 100-113

Abstract: A comparative study has been made of the proper-  
ties of chamotte- and carborundum-chamotte pastes  
for the production of plates for saggerless fir-  
ing of porcelain articles. It was found that  
carborundum-chamotte paste does not affect the  
color of porcelain if the carborundum contains no

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USSR /Chemical Technology. Chemical Products  
and Their Application

I-12

Silicates. Glass. Ceramics. Binders.

Abs Jour: Referat Zhur - Khimiya, No 9, 1957, 31591

iron; a considerable content of clayey components in the paste causes slag formation and surface swelling. At the Dulevskiy porcelain plant tests were conducted with plates of 300 x 300 x (15-30) mm, produced by the method of pneumatic tamping from a paste containing 97% SiC and 3% clay. Replacement of chamotte plates by carborundum-chamotte has decreased plate expenditure by 2.5-3.5 times. It is recommended to make extensive use of carborundum supports in saggerless firing of porcelain on tunnel furnace trucks.

Card 2/2

CHICHEMATAYEVA, S.M.; KOKH. N.Ye.

~~SECRET~~  
Refractory supplies for saggerless firing of porcelain. Trudy GIKI  
no.1:60-66 '56. (MIRA 11:5)

(Refractory materials) (Pottery)

VILEMSKIY, N.M., kand.tekhn.nauk; VORONOV, M.A., inzh.; CHEKHMUR, I.S.,  
inzh.

Energetic characteristics of a turbine installation for combined pro-  
duction of electric power and heat with consideration of additional  
flows of heat. Elek.sta. 30 no.134-37 Ja '59. (MIRA 12:3)  
(Power plants) (Turbogenerators)

ANDREYEVA, L.E.; ZARINA, E.Ya.; CHEKHOL'SKAYA, E.K.

Using "kateksol" as a surface-active agent. Khim.volok.  
no.5:67-68 '62. (MIRA 15:11)

1. Klinskiy kombinat iskusstvennogo i sinteticheskogo  
volokna.

(Rayon)  
(Surface-active agents)

**KHLEBNIKOV, A.M.; ZARINA, E.Ya.; CHEKHOL'SKAYA, E.K.; OREKHOVA, Z.M.**

Blending of silk on bobbins of a finishing machine. Khim.  
volok. no.5:73 '62. (MIRA 15:11)

1. Klinakiy kombinat iskusstvennogo i sinteticheskogo  
volokna.

(Rayon)  
(Textile finishing)

YAKOVLEV, N.F.; PUSHKEVICH, A.O.; CHEKHOL'SKIY, S.L.

"Principles of heat engineering" by I.N.Sushkin. Reviewed by  
N.F.Iakovlev, A.O.Pushkevich, S.L.Chekhol'skii. Metallurg 5  
no.3:40 Mr '60. (MIRA 13:7)

(Heat engineering)  
(Sushkin, I.N.)

CHEKHOL'SKIY, S.L., inzh.

"General heat engineering" by S.L.Chekhol'skii. Izv. vys. ucheb.  
zav.; energ. 5 no.3:101-102 Mr '62. (MIRA 15:4)

1. Belorusskiy institut mekhanizatsii sel'skogo khozyaystva.  
Predstavlena kafedroy teplo tekhniki, teplosilovykh ustanovok  
i gidravliki.

(Heat engineering)

CHEKHOLUZAYAN, A.L., inzh.

The UTM electrometer try squares for checking the perpendicularity  
of pieces. Izobr. v SSSR 3 no.3:12 Mr '58. (MIRA 11:3)  
(Electric instruments)

CHENHOLUZ'YAN, A., starshiy inzhener-tekhnolog.

Peening machine parts by rolling with small rolls or balls.  
Mer.flot. 16 no.9:22-23 8 '56. (MIRA 9:10)

1.Sudoremontnyy zavod imeni Dzerzhinskogo.  
(Metals---Cold working)

~~CHERONADSKY, N.A.~~

Using methods of the theory of random functions in measuring  
engineering. Izv. tekhn. no.2:3-6 Mr-Apr '58. (MIRA 11:3)  
(Measurement) (Errors, Theory of)

CHEKHONADSKIY, N.A.

Problems in theoretical-probability analysis of static errors in  
measuring systems. Trudy Inst. mash. Sem. po toch. v mash. i prib.  
no.13:3-14 '59. (MIRA 13:3)

(Measuring instruments--Testing)  
(Errors, Theory of)

S/115/60/000/010/001/028  
B021/B058

9.8000

AUTHOR:

Chekhonadskiy, N. A.

TITLE:

Analyzing Errors of Measuring Systems

PERIODICAL:

Izmeritel'naya tekhnika, 1960, No. 10<sup>14</sup>, pp. 1-4✓  
B

TEXT: In this paper, the simplest and often occurring case is studied where external low-frequency disturbances influence the measuring system occasionally. General considerations are made concerning the operation of the measuring system, when external disturbances are acting, and a remote measuring system for fluid pressure was studied (Figs. 1,2). Statistical characteristics of the summational error of the measuring system are investigated next. The operation of the measuring system is analyzed at the effect of a random time function on its input. Formulas 10 and 12, mentioned by the author, may be used for analyzing the errors of measuring systems in various individual cases. The author comes to the following conclusion: If during the operation of a linear measuring system, additional errors occur in the links of the system due to various external random disturbances, these errors coincide with the basic errors at the

Card 1/2

Analyzing Errors of Measuring Systems

S/115/60/000/010/001/028  
B021/B058

output of the instrument and form a certain summary static error. The latter characterizes the accuracy of the measuring system under the given assumptions. If during experiments a repeated measurement of the quantity investigated is conducted by means of a measuring system under the influence of various external random disturbances, a certain compensation of the static measuring error of this quantity can occur when the measuring results are evaluated statistically. There are 2 figures and 6 Soviet references.

✓B

Card 2/2

26.2/95

<sup>25751</sup>  
S/024/61/000/001/005/014  
E061/E128

**AUTHORS:** Chekhonadskiy, N.A., and Shumilovskiy, N.N. (Moscow)

**TITLE:** Concerning Some Problems of the Application of the Theory of Invariance

**PERIODICAL:** Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, Energetika i avtomatika, 1961, No.1, pp. 124-132

**TEXT:** The paper considers some problems of the application of the theory of invariance and the compensation of disturbances to complex measuring systems in order to improve their accuracy. Measuring systems are considered as a series of elements connected in cascade or in somecases with feedback loops. Errors arise due to element imperfections, the effect of outside variables and dynamic response. A system consisting of a number of linear elements in cascade is considered. The input, the outside disturbances and the effects of imperfections in the elements, are assumed to be random. Expressions for the central tendency and the dispersion of the resulting errors are derived. An analysis of the expressions shows that for such a system absolute invariance is only possible if the instrument is an ideal filter with respect to  
Card 1/3

25751  
S/024/61/000/001/005/014  
E061/E128

**Concerning Some Problems of the Application of the Theory of Invariance**

all outside disturbances. Approximate invariance is obtained if the sum of the mean error components due to the outside disturbances is zero, though there is still error due to the random spread of outside disturbances. Approximate invariance also results if the algebraic sum of the mean errors due to outside disturbances is opposite in sign to the dynamic error and the imperfections in the instruments. Next the response of a system with a negative feedback loop, subject to slow random changes of the measured variable and of disturbances, is considered. It is shown that the existence of negative correlations among the various error-producing disturbances may lead to some reduction of the dispersion of error. It is also shown that if the transfer function of the elements in the feedback loop is a certain function of the error producing disturbances the value of error can be reduced to zero. However, this is not practicable since in the general case of non-stationary random disturbances this would involve a feedback transfer function which varies as a function of

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E061/E128

**Concerning Some Problems of the Application of the Theory of  
Invariance**

the disturbance. When the random disturbances are stationary,  
however, a suitable transfer function can be found and full  
suppression of the mean value of error by this means is possible.  
There are 3 figures and 8 Soviet references.

SUBMITTED: March 9, 1960

X

Card 3/3

S/115/61/000/002/002/005  
E140/E435

9.6000

AUTHOR:

Chekhonadskiy, N.A.

TITLE:

On a method of improving the precision of  
measuring systems

PERIODICAL: Izmeritel'naya tekhnika, no.2, 1961, 8-12

TEXT: The author assumes a linear series combination of individual circuits constituting a measuring system. Mathematical expressions are derived for the statistical error due to random perturbations acting on each of the elements in the system. The method of improving the precision is to introduce periodically a calibration signal at a definite point in the system and observing the output indication. Then the ratio between the observed indication and the nominal for that calibration signal can be used to correct the output indications for unknown input signals applied during a short period before and after the calibration. The correction is valid only for the part of the system following the point of introduction of the calibration signal, and only for the systematic and mean random errors. If the random errors are sufficiently slowly varying  
Card 1/2

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B

On a method of improving ...

S/115/61/000/002/002/005  
E140/E435

functions of time compared with the interval between measurement of the unknown and the calibration signal, this obviously also helps to improve the precision. [Abstractor's note: No indications are given for using the method automatically.] There are 2 figures and 4 Soviet-bloc references.

Card 2/2

CHEKHOMADSKIY, N. A.

Evaluating errors of compound measuring units composed of sets  
of separate blocks. Trudy inst. Kom. stand. mer i izm. prib.  
no.57:10-18 '62. (MIRA 15:10)

(Measuring instruments)

CHEKHONADSKIY, N.A.

Evaluating operational precision of measuring systems with  
backfeed. Trudy MAI no.147:124-138 '62. (MIRA 16:2)  
(Measuring instruments)

CHEKHONADSKIY, N.A.

Accuracy criteria of measuring systems. Izv. AN Kir. SSR. Ser.  
est. i tekhn. nauk 4 no.8:31-40 '62. (MIRA 16:6)  
(Electric measurements) (Automatic control)

CHEKHONADSKIY, N.A., inzh.

A method for increasing the precision of measuring instruments.  
Priboroostroenie no.1:3-5 Ja '63. (MIRA 16:2)  
(Measuring instruments)

~~CHEKHONADSKIY, N.A.~~

Using error-compensation phenomena for increasing the precision  
of measuring and information systems. Izv.tekh. no.1:3-6 Ja '63.  
(MIRA 16:2)

(Mensuration)

L 30099-65 EWT(d)/EEC(k)-2/EEC-4/ENP(1) Po-4/Pq-4/Pg-4/Pk-4/Pl-4 IJP(c) GS/  
 BC

ACCESSION NR: AT5004133

S/0000/64/000/000/0441/0448 50

AUTHOR: Chekhnadskiy, N.A. B+/

TITLE: Some questions on the use of the theory of invariance in high-accuracy measuring systems

SOURCE: Vsesoyuznoye soveshchaniye po teorii invariantnosti i yeye primeneniyu v avtomaticheskikh sistemakh. 2d, Kiev, 1962. Teoriya invariantnosti v sistemakh avtomaticheskogo upravleniya (Theory of invariance in automatic control systems); trudy soveshchaniya. Moscow. Izd-vo Nauka, 1964, 441-448

TOPIC TAGS: invariance theory, automatic control system, measuring system, control system stability 9M

ABSTRACT: Some questions on the use of the theory of invariance in high-accuracy measuring systems are investigated. The author commences with a brief review of the purposes of measuring devices and the effects of external perturbations on their accuracy. He therefore investigates the use of compensation of perturbations in complex measuring devices for the purpose of realizing the conditions of invariance up to  $\mathcal{C}$ . An analysis is carried out for the most characteristic case of operation of high-accuracy measuring systems when the measured magnitude and external actions are random functions slowly

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ACCESSION NR: AT5004133

changing in time. After determining the conditions of invariance of a measuring system up to  $\epsilon$ , he determines the compensation of perturbations of the first and second kinds in the components of the measuring system. The article concludes with an investigation of the technical realization of invariant measuring systems. The author finds the mathematical expectation of perturbations developing in a measuring system. In conclusion, he states that, in a measuring system working under conditions of random external actions, compensation of the separate perturbations is possible, leading to the fulfillment of the conditions of invariance within the limits of the magnitude of  $\epsilon$ . In addition, the use of special sensing elements decreases the magnitude of  $\epsilon$  to some extent, which is most important when designing high-accuracy measuring systems. Orig. art. has: 5 figures and 16 formulas.

ASSOCIATION: none

SUBMITTED: 24Sep84

ENCL: 00

SUB CODE: IE

NO REF SOV: 014

OTHER: 000

Cord 2/2

ACCESSION NR: AT4037707

S/2865/64/003/000/0379/0388

AUTHOR: Vayevskiy, R. M.; Bogdanov, V. V.; Vokresenskiy, A. D.; Yegorov, A. D.;  
Chekhonadskiy, N. A.

TITLE: The application of mathematical methods in space medicine

SOURCE: AN SSSR. Otdeleniye biologicheskikh nauk. Problemy\* kosmicheskoy  
biologii, v. 3, 1964, 379-388

TOPIC TAGS: space medicine, mathematics, cybernetics, space flight, pulse rate,  
acceleration, cosmonaut, manned space flight

ABSTRACT: This article deals with the interpretation of results and concepts  
presented in six articles which were published in 1962-1963. These articles were  
written chiefly by the author of the article reviewed here. It is stressed that  
in the last few years new trends have appeared in biology and medicine where  
mathematical methods are extensively used. These trends appear to be of great  
importance in space biology and space medicine because of special conditions af-  
fecting biological experiments and medical protection of organisms during space

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ACCESSION NR: AT4037707

flights. An important problem of space biology and medicine is that of obtaining scientific information during space flights and transmitting the information to earth by means of radiotelemetering systems. The determination of optimal methods for coding such information which will ensure the most effective utilization of channels is the most important factor in designing radiotelemetering systems in space ships. For the solution of such problems the mathematical apparatus of the information theory is proposed. As an example, certain problems in coding electrocardiograms are presented. The problem of coding of information includes the problem of designing simple and economical coding devices such as digital computers, integrators, and others. Functions to be performed by computers in space-ships and the principles of their design are analyzed. It is noted that development of algorithms for computers in spaceships is a very complicated problem whose solution will require the use of mathematical logic, probability theory, and other mathematical disciplines in addition to biological and medical information. As an example, an algorithm for processing electrocardiograms is presented. The methods of mathematical simulation must be applied to the construction of schemes for analyzing and prognosing changes in the state of an astronaut. Mathematical models reflecting the dynamics of physiological indices (pulse rate, blood pressure, etc.) due to the action of certain factors during space flight can be

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ACCESSION NR: AT4037707

developed on the basis of experimental data obtained in laboratories by using the methods of mathematical statistics. Statistical indices such as mathematical expectation, variance, and correlation function must be established. Peculiarities encountered in determining statistical indices for space biology and space medicine are analyzed. As an example, the problem of prognosing the pulse rate when a cosmonaut is subjected to linear accelerations is presented. It is concluded that quantitative descriptions of physiological processes and the construction of mathematical models reflecting the principal changes in organisms under various space flight conditions are possible. The authors believe that the problems analyzed in the article represent only a small part of the questions in space biology and space medicine which will require mathematical methods for their solution.

ASSOCIATION: none

SUBMITTED: 00

ENCL: 00

SUB CODE: MA, PH

NO REF SOV: 006

OTHER: 000

Card 3/3

L 29437-66 EWT(1) SCTB DD/GD

ACC NR: AT6012902

SOURCE CODE: UR/0000/65/000/000/0241/0244

AUTHOR: Kakurin, L.I.; Kotovskaya, A.R.; Filosofov, V.K.; Chekhonadskiy, N.A.; Chichkin, V.A. 27 B+1

ORG: none

TITLE: The influence of G-force and hypodynamia on the reaction of the operator

SOURCE: Sistema chelovek i avtomat (Man-automaton systems). Moscow, Izd-vo Nauka, 1965, 241-244

TOPIC TAGS: biologic gravity effect, hypodynamia, human physiology

ABSTRACT: Of special interest in the investigation of semiautomatic control systems is the question of the nature of the influence of such factors as G-force, weightlessness, hypodynamia (restricted movements), etc., on the reaction of the operator. The authors performed an investigation in which the input device of the man-operator was the visual analyzer, and the output device the motion of the hand (finger). The visual analyzer is a highly perfected organ and is characterized by a high resolution factor and relatively high reliability. For an operator under normal conditions, the mathematic expectancy of the delay time in the recognition of light signals is 0.20 sec; furthermore, as established by I. Ye. Tsibulevskiy (Zapazdyvaniye operatora pri obrabotke zritel'nykh signalov. — AiT, 1962, 33, no. 11), delay depends on the age of the operator (the correlation between delay and the operator's age is 0.42). The present article is devoted to the study of the influence of G-force and hypodynamia on the reaction

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L 29437-66

ACC NR: AT6012902

of the operator while the operator is in the process of recognizing single, random visual signals. On the basis of data analysis, the authors conclude that when the operator is subjected to G-force his reaction time to a light signal increases. An analytical form of the relationship, which takes into account the relative location of the light indicator on the signal panel, may be approximately described by the empirical formula

$$\tau_1 = 0,21 (1 + \beta) + (0,01 + 0,5 \beta) n,$$

where  $\beta$  is the coefficient of the relative location of the light indicators on the signal panel, and  $n$  is the G-force. The influence of hypodynamia (for a specific group) is also manifested in an increased reaction time. Orig. art. has: 2 formulas, 1 table, and 3 figures. [08]

SUB CODE: 06/ SUBM DATE: 2Aug65/ ORIG REF: 002 / ATD PRESS: 5109

Card 2/2 *fv*

L 32698-66 EWT(1) SCTB DD

ACC NR: AP6015233

(N)

SOURCE CODE: UR/0410/65/000/002/0011/0017

51  
B

AUTHORS: Gazenko, O. G. (Moscow); Chakhonadskiy, N. A. (Moscow)

ORG: none

TITLE: Perception inherent in the living organism of certain mechanical quantities

SOURCE: Avtonetriya, no. 2, 1965, 11-17

TOPIC TAGS: perception, animal, acceleration, vestibular function, anatomic model, integration, differentiation, neuron, periodic pulse

ABSTRACT: The properties of an elementary model of the otolithic part of the vestibular apparatus are examined. The model (see Fig. 1) explains a number of functions of this organ and has the following properties: 1) the sense organs of the otolithic part of the vestibular apparatus are generator pickups, converting the angle of deflection of the head to electric pulses with a definite proportionality factor; 2) the sense organ reacts to inclination of the head; 3) the otolithic apparatus consists of a large number of sense organ-neuron networks; and 4) the vestibular apparatus contains an "adding device" which compares the frequencies of pulses from the left and right utriculi and also from the sacculum. Relations are given for measuring the magnitude and direction of the following values: deflection of the head from the vertical; linear accelerations caused by motion of the animal; centrifugal forces; and acceleration in the presence of periodic mechanical

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UDC: 57+61:62.506.2

L 32698-66

ACC NR: AP6015233

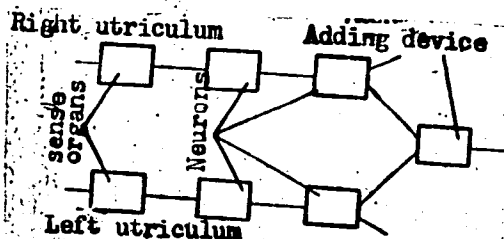


Fig. 1. Block diagram of elementary model of otolithic part of vestibular apparatus.

oscillations (see Fig. 2). On the basis of experimental data and the properties of

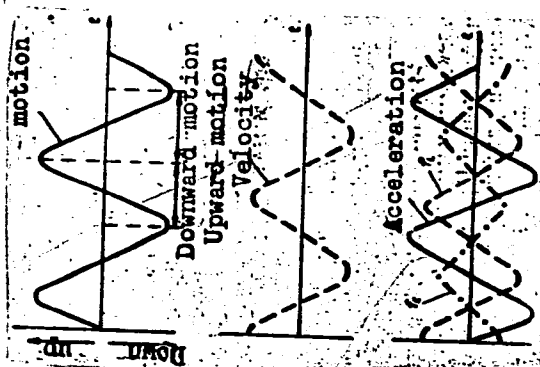


Fig. 2. Graphs of motion, velocity, and acceleration acting on organism and pulse repetition rate at output of two sense organ-neuron networks.

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the model, it is assumed that the sense organs of the otolithic part of the vestibular apparatus perceive accelerations acting on the organism, the sense organ-neuron networks differentiate and integrate the acceleration values, and the otolithic part "measures" the velocity, acceleration, and first derivative of the acceleration. Orig. art. has: 14 formulas, 4 diagrams, and 1 graph.

SUB CODE: 06/

SUBM DATE: 11Sep64/

ORIG REF: 003

00276-57 889-2/1000/000/0018/0019 1000 1000/0018/0019

ACC NR: AT6036/72

SOURCE CODE: UR/0000/66/000/000/0018/0019

60  
8-1

**AUTHOR:** Akulinichev, I. T.; Baykov, A. P.; Vasil'yev, P. V.; Kas'yan, I. I.; Maksimov, D. G.; Uglov, A. Ye.; Chekhonadskiy, N. A.

**ORG:** none

**TITLE:** Some data from electrophysiological investigations conducted on the crew of the Voskhod-2 during spaceflight (Paper presented at the Conference on Problems of Space Medicine held in Moscow from 24-27 May 1966)

**SOURCE:** Konferentsiya po problemam kosmicheskoy meditsiny, 1966. Problemy kosmicheskoy meditsiny. (Problems of space medicine); materialy konferentsii, Moscow, 1966, 18-19

**TOPIC TAGS:** space physiology, manned space flight, Leonov, extravehicular activity, cardiology, cardiovascular system, electrooculogram, electrocardiogram, body temperature, electrophysiology, respiration, heart rate / Voskhod-2

**ABSTRACT:**

Electrocardiograms, pneumograms, seismocardiograms, and electro-oculograms were registered on the Voskhod-2 cosmonauts, Belyayev and Leonov. In addition, Leonov's body temperature was measured. After the spaceship attained orbit, the frequency of cardiac contractions continued to increase and to exceed the levels registered

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during active acceleration. These changes in pulse rate were due to the preparations for Leonov's EVA. During EVA, their heart rates reached the maximums of 129 and 162 beats/min. By the third orbit, the heart rate and respiration frequencies of the two cosmonauts became normal, equaling prelaunch magnitude. Further changes were comparable to those noted in preceding flights. The lowest heart rates were recorded during the seventh orbit. From the thirteenth to the eighteenth orbit there was a gradual increase in the rate of cardiac contractions (86—111) and an increase in respiration rate up to 18—20 cycles/min, which was related to the performance of a series of tasks according to the program, and to the emotional strain induced by preparation for manual re-entry.

Analysis of the EKG indicated that the significance of the Q—T and R—R intervals in both cosmonauts corresponded to changes in frequency of the heart rate. The lability of the Q—T coefficient was higher at the beginning and end of the flight in both cosmonauts and diminished noticeably during the middle of the flight. The same was observed in relation to the amplitude of the EKG peaks. The duration of the mechanical systole in general followed changes in pulse rate from the third to the sixteenth orbit; the duration of Leonov's mechanical systole varied from 0.32—0.35.

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sec. During the 17th and 18th orbits, the duration of the mechanical systole diminished to 0.29—0.27 sec simultaneously with an increase in the pulse rate. Electromechanical lag was determined only in Leonov and during various times of the flight varied from 0.02—0.06 sec.

Oculomotor activity during the first two orbits rose in both cosmonauts to 105—111 movements/min. During the third and fourth orbits the number of oculomotor reactions diminished and after that varied within relatively low limits: 10—40 movements/min. The dynamics of the electro-oculogram corresponded to changes in the pulse and respiration frequency and reflected, apparently, the general condition of the cosmonauts. An analysis of the amplitudes and the curve of the EOG indicated that eye movements in the cosmonauts were rather symmetrical during the entire duration of the flight.

Leonov's armpit temperature varied during the flight from 35—37. °C. The higher temperatures were recorded during the 2nd, 16th, and the 17th orbits. This can be explained by emotional strain and performance of physical tasks by the cosmonaut. (U. A. No. 22; ATD Report 66-116)

SUB CODE: 06,22 / SUBM DATE: 00May66

Card 3/3 vmb

AUTHORS: Chekhomov, O. M. and Davidyuk, V. N., Engineers <sup>133-58-4-25/40</sup>

TITLE: ~~On the Problem of Axial Defects in Cold Drawn Ball~~  
Bearing Steel (K voprosu ob osevykh defektakh v  
kalibrovannoy sharikopodshipnikovoy stali)

PERIODICAL: Stal', 1958, Nr 4, p 354 (USSR)

ABSTRACT: The defect appeared in the form of a small crack in the fracture of rods (Figs.1-3). A study of a large number of longitudinal cross-sections of ingots indicated that one of the probable causes of the defect of cold drawn steel is the porosity of the axial part of the ingot. In the axial zone of 2.6 ton ingots of steel ShKh15SG a coarse porosity reaching more than two-thirds of the total ingot height was observed. In order to obtain a more dense axial zone, the ingot mould was redesigned (increased taper and increased shrinkage head, Fig.4). With the new shape of ingot moulds the proportion of defective heats decreased from 28.9% to 13.0%. The use of these moulds for steel ShKh6, semis of which undergo large reduction, brought to zero the proportion of rejects due to axial defects.

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There are 4 figures.

ASSOCIATION: Zlatoustovskiy metallurgicheskiy Zavod (Zlatoust Metallurgical Works)

1. Steel--Fracture 2. Ingots--Porosity 3. Molds--Design

СНЕКНОВ, С.М.

**AD: B0825**

8/135/60/000/007/007/016

Volnov, S.C., Candidate of Technical Sciences; Komysenkov, A.M., Engineer; Petrov, A.K., Engineer; Pekhtel'tsev, Ya.Y., Engineer; Karlov, A.I., Engineer; Shalagin, A.O., Candidate of Technical Sciences; Kozlov, L.Y., Engineer; Chernobrov, O.M., Engineer; Khasin, G.A., Engineer.

127272

# The Refining of Alloy Steels by Molten Synthetic Slags

PERIODICAL: 'Izvestia', 1950, No. 7, pp. 611 - 616

The experiments of refining alloy steels by molten slags in the ladle, were aimed to improve this process. 315 experimental castings were made in 10- $\gamma$  and 20- $\gamma$  basic arc furnaces, with ball bearings, structural and stainless steels. The slag was prepared in a 10- $\gamma$  arc furnace (with a 2500 kcal transformer) from a mixture of 95 gf lime and 40 kg co-solvent grade acid (transformer) from a mixture of 95 gf lime and 40 kg co-solvent grade acid (transformer). The synthetic slag poured into the ladle was about 5-6% of the metal weight. Two kinds of slags were used, one for ball bearings steel (A - a) and one for structural and stainless steel (B - a). With the following composition (the nominators indicate the values before the denominators after the treatment of the metal):

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	CaO	Al <sub>2</sub> O <sub>3</sub>	SiO <sub>2</sub>	MgO	P <sub>2</sub> O <sub>5</sub>
11.4g	44.4	44.4	1.42	1.22	0.10
A	49.5	42.2	5.54	5.46	0.25
B	43.8	41.5	1.31	1.46	0.18
	50.4	47.5	4.32	5.03	0.23

The temperature of the alloy varied between 1,650°C and 1,750°C. The electric power used in preparing the alloy was 150 kw/h per 1 ton of steel, this value, however, will not be higher than 90 kw/h when using furnaces specially designed for this purpose. The above-mentioned consumption in the melting of the furnace was 1.3 kw/h per ton. In the experiments the following steel types were used: 11X15 (21X15), 21X15T (21X15T), 65M (S65M), 10X15 (10X15), 10X15M (10X15M), 40X15M (40X15M), and 70X15M (in 20-42 electric furnaces) and 38MnSi (38MnSi), 35MnSi (35MnSi), 18X15T (18X15T), 12X15T (12X15T), 12X15M (12X15M), CrM (18Mn), V15 (15Mn), and V15Mn9V (in 10-42 electric furnaces). Several modifications of refining are described and under basic and chaotic alloying with different amounts of ferroalloys and abrasives with and without deoxidation of the metal and with varying duration.

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The Refining of Alloy Steels by Molten Synthetic Slags

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tion of the process. Generally it was found that the refining time was reduced by 45 - 50 min for all steel types and the output of the electric furnace could be increased by 10 - 15%. The microstructure and the fracturing of the tested steel types were found to be satisfactory. The sulfur content decreased to 0.001 - 0.0015%, with an initial sulfur content of 0.004%. The phosphorus content decreased to 0.001 - 0.0015%, with an initial phosphorus content of 0.002 - 0.003%. The nitrogen content decreased to 0.001 - 0.0015%, with an initial nitrogen content of 0.002 - 0.003%. The oxygen content decreased to 0.001 - 0.0015%, with an initial oxygen content of 0.002 - 0.003%. The results were obtained for the XMOCH steel: 5.7 kg/ton and 11.5%, respectively. These values

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are 1-6 times and twice higher than those for the conventional type of steel. It was also found that the anisotropy of the steel properties as measured by the relation of values for relative shrinkage of transverse and longitudinal specimens increased from 0.62 (of the conventional steel) to 0.75 and 0.85 on the average for the test metal, observed in two variants of the process (variant I and II), whereas the relation of the values for impact strength was raised from 0.54 to 0.71 and 0.77, respectively. It was found that by increasing oxygenation steel and converter steel with synthetic slag the level of technological parameters of the steel was raised to the level of those of all-iron steel. The article contains the principal technological data for the test steels, the change of the sulfur content in the metal and the synthetic slag in the various stages of refining and the indices of mechanical properties of the structural and stainless steel specimens. There are 6 sets of graphs, 1 diagram, 1 table and 1 reference: 1 Soviet, 1 Swedish and 1 English.

ASSOCIATION: Metallurgy Institute, Institute of Steel (Petrovskiy, M. L. Kozlov)

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*CHEKHOMOV, O.M.*

4

S/123/62/000/003/001/006  
A054/A127

AUTHORS: Voinov, S. G., Kosoy, L. F., Shumov, M. M., Shalimov, A. G.,  
Chekhomov, O. M., Andreyev, T. B., Afanas'yev, S. G., Kailunikov,  
Ye. S.

TITLE: Refining converter steel with liquid synthetic slag in the ladle

PERIODICAL: Stal', no. 3, 1962, 226 - 232

TEXT: The good results obtained in refining electric steels with liquid  
lime-aluminous slag led to pilot-plant tests with converter steels, using the  
same method. 111 heats were smelted in a basic 8-ton converter; 46 of them were  
refined in the ladle with liquid synthetic slags of the following composition  
(in %):

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Steel grade	Number of heats	CaO	Al <sub>2</sub> O <sub>3</sub>	SiO <sub>2</sub>	MgO	FeO	Cr <sub>2</sub> O <sub>3</sub>
ШХ15 (ШХ15)	6	<u>55.26</u> 53.04	<u>42.73</u> 41.47	<u>1.90</u> 3.85	<u>0.79</u> 0.80	<u>0.82</u> 0.90	<u>0.30</u> 0.17
12XH3A, 06H3 (12XN3A), (06N3)	5	<u>52.49</u> 49.82	<u>42.45</u> 36.94	<u>2.02</u> 5.05	<u>0.78</u> 0.82	<u>0.90</u> 7.69	<u>0.94</u> 0.92
ГДБ (сдв) (deep drawing steel)	7	<u>53.10</u> 51.37	<u>44.22</u> 38.34	<u>2.19</u> 4.52	<u>0.75</u> 0.93	<u>0.65</u> 4.05	<u>0.23</u> 0.23
И (I) (tool, carbon, cable, rail, axle steel)	14	<u>53.58</u> 52.51	<u>44.08</u> 40.92	<u>2.06</u> 3.61	<u>0.69</u> 0.72	<u>0.70</u> 1.75	<u>0.15</u> 0.13

(numerator: composition prior to metal treatment; denominator: composition after the treatment). The slag was melted in a 3-ton arc furnace, with hearth and banks of carbon blocks and carbon packing. The slags differed from those used for electric steels in that they contained more silica, ferrous oxides and

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chrome oxides. To maintain the fluidity and reactivity of the slag under the test conditions, its quantity was increased to 6.5% of the metal weight, the temperature of the liquid slag in the furnace was raised to 1,750 - 1,850°C and the interval between pouring the slag and tapping the metal was reduced (to 2 min. 5 sec. on the average). The ladle was preheated to 600 - 800°C prior to slag tapping. The basic slag forming additives were common open-hearth lime (with up to 0.2% S), bauxite and in some cases (for medium-carbon and high-carbon steel grades) fluorite. Lime was added in two batches: prior to pouring the cast iron and 4 - 5 minutes after blowing started; the other two components were added together with lime. The quantity of the latter used for alloy and high-grade steels was 8 - 9%, for rail and axle steel 6 - 7% of the charge weight. ShKh15, 12KhN3A, 05N3 grades, deep-drawing steel and carbon (tool) steels were cast with fluorite (0.3 - 0.8% of the charge weight; the slag was tapped twice.) To determine the optimum cast iron composition, cast irons with components varying greatly in amount were used (0.28 - 0.78% Si, 0.50 - 1.80% Mn, 0.025 - 0.095% S, 0.085 - 0.220P). The slags were very active already at the beginning of blowing. The basicity of slags ( $\text{CaO}:(\text{SiO}_2 + \text{P}_2\text{O}_5)$ ) increased progressively (5 - 5 1/2 minutes after blowing started it was 2.0, at the end of blowing: 3.0 - 4.0). The synthetic slag refining method in converters with oxygen top blast results in a

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